KENTUCKY DEAF ACCESS CONSORTIUM

People with disabilities have particular needs to which new communications services are insensitive. The telecommunications of the future will represent a mix of voice, graphic and videotext services that may not be fully utilized by people who are deaf or hard of hearing, blind or visually-impaired, or speech-impaired unless steps are taken now to guarantee their full and equal access…With regard to telecommunications access by person with disabilities, many fundamental issues remain to be addressed.
(Laying the Foundation, 1991- World Institute on Disability)

1. PROJECT PURPOSE

Background: Kentucky House Bill 322 (1986) mandated that the state's Council on Higher Education choose a public institution to offer and oversee a degree program in Interpreter Training. Subsequently, the Council chose Eastern Kentucky University (EKU) as the public institution of higher education to fulfill this mandate. As the educational entity mandated to conduct outreach and continuing education activities to those who work with deaf/hard of hearing Kentuckians, EKU proposes to link deaf/hard of hearing persons in every sector of the state, in both rural and urban areas, with information-age technology. The community-focused and community-supported "Kentucky Deaf Access Consortium" (K-DAC) will be used by state agencies, educational entities, and individual citizens. To carry out this mission, EKU is partnering with three state agencies: Kentucky Commission on the Deaf and Hard of Hearing, Department of Vocational Rehabilitation, and Department of Mental Health and Mental Retardation. 28 Deaf Access Stations will be strategically located throughout the Commonwealth of Kentucky. **Deaf Access Stations are computer workstations that allow a deaf or hard of hearing person to communicate with a hearing person via the use of videoconferencing.** Each will be fully equipped for video and desktop conferencing, as well as Internet connectivity, which will provide the converging technologies of telephone, fax, data, video, electronic mail, the Internet, captioning services, and remote interpreting.

Deaf/hard of hearing persons in the Commonwealth of Kentucky have traditionally been isolated from public services. In a July 1995, Task Force Report on Strategic Planning for Providing Adequate Services for the Deaf and Hard of Hearing Population in the Commonwealth, the Kentucky Commission on the Deaf and Hard of Hearing (KCDHH) identified fifteen specific areas of concern that would serve to remediate fragmented, inaccessible, and inefficient service areas. In conjunction with 40 state agencies, 25 consumer organizations, and deaf/hard of hearing individuals, KCDHH identified gaps and barriers in all areas of service provision to deaf/hard of hearing persons. **The Task Force committee charged with preparing the report noted a critical need for full access to the information superhighway infrastructure and to information technology, including access to Internet sites, basic computer training, captioning services, and remote interpreting.** Since that time, town hall meetings held on behalf of the deaf/hard of hearing community yielded responses similar to those found in the 1995 report. For example, the Kentucky Department for Mental Health and Mental Retardation

learned from parent meetings held in 2000 that technology access would alleviate travel worries associated with necessary mental health treatments for deaf/hard of hearing children and teenagers. Other 2000 meetings, sponsored by EKU's Center on Deafness, focused on the issue of domestic violence in the Deaf community and the issue of continuing education for educational interpreters. These meetings yielded the same results as the 1995 Task Force report and the 2000 mental health meetings: **a critical need for full access to the information superhighway infrastructure and to information technology exists within the deaf/hard of hearing community.**

In 1996-97, KCDHH conducted a Research and Development investigation into the use of videoconferencing to provide remote interpreting services. In short, this investigation found that "videoconferencing is a viable communication alternative that provides a three-dimensional view of conversation which enables deaf and hard of hearing individuals to be more enthusiastic participants" (DEAF TELELINK DEMONSTRATION PROJECT FINAL REPORT, page 16). This initial project is the forerunner of K-DAC. As part of its preparation to move from an associate degree program to a baccalaureate degree program in the late 1990's and in investigating the feasibility of creating a Center on Deafness, faculty and staff of the EKU Interpreter Training Program investigated the use of emerging technologies to provide remote interpreting services and captioning services. Within the past year, Kentucky's Departments of Vocational Rehabilitation and Mental Health & Mental Retardation, the KCDHH, and EKU have been able to explore this option further because of new and emerging technologies that allow American Sign Language to be broadcast **without the distortion previously associated with the movements of signing.** Prior to these new technologies, such broadcast was impossible. **It is a combination of this research and of this emerging technology that brings together the four Kentucky entities most responsible for and most capable of providing services to deaf/hard of hearing consumers.**

The Problem to be Addressed: The problem is multi-layered:

- The deaf/hard of hearing population in Kentucky totals approximately 400,000 people (based on demographic reports from the Kentucky Data Center at the University of Louisville). Members of this population need *equitable access* to sign language remote interpreting and real-time captioning services, affording them access to all public services. Quality control in telecommunications services has been sporadic and, in most cases, completely lacking, especially in rural and isolated areas of the state.
- Deaf/hard of hearing persons in all areas of the state lag in knowledge and use of technological innovations that allow for empowerment and acceptance as full-fledged citizens, especially in educational and employment opportunities. Often, though not always, mountains, inadequate highway systems, or both, create this lag.
- Programs that will make communication accessible, offer coordinated services, and provide training need strong, centralized coordination in conjunction with local access stations, which will share information and costs. An infrastructure

that will allow for these programs serving deaf/hard of hearing persons currently does not exist in Kentucky.

- Related to these first three problems is a fourth one: the lack of a sense of immediacy in addressing the needs of the deaf/hard of hearing population. As a result, this population often finds delays when seeking services. This can and often does lead to their not seeking assistance or information, or to their delaying the seeking of such, sometimes leading to an abscess of the original problem.

The Solution: The solution is also multi-faceted:

- Building on the concept of Deaf Access Stations (DAS), which were established by the KCDHH in 2000, EKU will work with project partners (KCDHH, Vocational Rehabilitation, and Mental Health and Mental Retardation) to coordinate the implementation of access stations via a state-wide network (see **Appendix B**) that will utilize emerging interactive technologies (voice, **American Sign Language**, videoconferencing, data, e-mail, graphics, desktop capabilities, and the Internet). The University is committed to exploring with its partners new and emerging technologies that will address the gaps experienced by deaf/hard of hearing end users. EKU and its partners will oversee project activities and ensure quality control in the provision of services delivered via this new network.
- Each of the access stations will function as field offices for outreach and case management for the Departments of Vocational Rehabilitation and Mental Health and Mental Retardation. In addition, all stations will have an **interactive videoconferencing system, Internet connectivity, desktop video conferencing, and public access personal computers.** Deaf/hard of hearing persons residing in the regions will then be able to access interpreting and real-time captioning services from a centralized location. **Appendix A** illustrates remote interpreting and captioning techniques and provides an example of access station use.
- The network infrastructure will include connectivity points allowing for utilization of a deaf-friendly, statewide network.

The Outcomes: The outcomes of K-DAC are measurable and realistic. They are:

- The communications infrastructure and strategy offered by this project will allow deaf/hard of hearing end users to access public services offered by state entities.
- Interpreting and real-time captioning support services will increase and will be monitored for both quality and quantity.
- Placement and installation of the infrastructure will be the easiest component to measure. **Appendix C** provides the implementation schedule.
- The lack of immediacy in service delivery will be reduced.

It is important to note that much data, such as the number of contacts made and requests for services and training, can be counted; however, those are *outputs.* It is the overall impact on the lives of the deaf/hard of hearing end users that may often be the immeasurable *outcome*.

Targeting Underserved Communities: Why this project? "Tele" services are not entirely new. Wittson and colleagues first launched telehealth in the late 1950's by providing telepsychiatric services (Jones & Colenda, 1997; Witton, Affleck & Johnson, 1961). However, creating a continuum to provide services to the deaf/hard of hearing population in a variety of settings without waiting for the physical presence of service providers and others **is** new. The physical condition of deafness strikes every segment of the population: young and old, rich and poor, rural and urban, male and female, and all other demographic categories. No matter the city, county, or state under review, deafness occurs in ten percent of any population. Eliminating the waiting time for services should decrease the need for increased intervention and save money, as well as reduce stress on the deaf/hard of hearing end users, thereby adding value and opportunity to their daily lives.

2. INNOVATION

NTIA/TOP has funded a number of projects intended to enhance the quality of life in communities large and small. The distinguishing feature of K-DAC is its unique **consumer-centered** approach that harnesses Internet-based technologies to provide real-time, virtual service coordination by facilitating interaction between consumer and service provider. Another distinguishing feature is that the partners will truly share the network system. No one entity will "own" the network. All partners collectively contribute their own strengths and resources and, as a group, buy connectivity and applications that none could afford or justify as cost-effective as a lone provider of services. Additionally, our research indicates that projects often focus on either connectivity or application—not both simultaneously. Our model, however, addresses both at the same time. Finally, other than the deaf access software, some in the information technology arena may not consider most of the technologies proposed "cutting edge". However, the combination of the proposed technologies with the new deaf access software allows K-DAC partners to tackle a fundamental systemic problem in the current state of technology accessibility for the deaf/hard of hearing end user. **In this regard, Kentucky will serve as a national model of successful service provider delivery to deaf/hard of hearing consumers.**

3. DIFFUSION POTENTIAL

Rural communities share many common problems (isolation, remoteness, economic decline, poverty, illiteracy, despair, the Digital Divide). A new problem they now share in this Information Age is difficulty accessing the connectivity and applications commonplace in most urban and suburban areas. Much of Kentucky is about as rural as an area can be. For example, 21 of the 22 counties that fall within EKU's primary service region lie in the heart of Appalachia; and the deaf/hard of hearing who reside in that area represent some of the most impoverished citizens east of the Mississippi. That very reality is perhaps the central driving force that this project concept exists. K-DAC partners believe that our concept, which is a direct response to the lack of access to 21st century digital resources, would hold significant interest for our sister rural communities

across the nation. In addition, this initiative, as described in the "Innovation" section, combines the qualities of uniqueness and practicality that promote its adaptation and scalability by other communities, rural or not.

Accessibility to our project design, as well as implementation history and lessons learned, are at the center of our dissemination plan, which includes an aggressive attempt to share our work with others. This plan includes such activities as the development of a project Web site, which would describe the project and chronicle its implementation; attendance at conferences and symposia, including those sponsored by National Registry of Interpreters for the Deaf (RID), ADARA, (Professionals Networking for Excellence in Service Delivery with Individuals who are Deaf or Hard of Hearing), National Association of the Deaf (NAD), Southeast Regional Institute on Deafness (SERID), and National Rehabilitation Association Conference, to present the project and its results to various audiences; the publication of reports to be distributed to a wide range of stakeholders and interested parties, specifically other state agencies and institutions that could join the project at their own costs, and to other deaf/hard of hearing organizations including Alexander Graham Bell Association and Self Help for Hard of Hearing (SHHH); and the authoring of articles to be published in numerous journals and professional publications, including RID's *VIEWS*, Phi Delta Kappa's *The Kappan* (the nation's leading journal in educational research), ADARA's *Journal*, JOURNAL OF REHABILITATION, and AMERICAN ANNALS OF THE DEAF.

4. PROJECT FEASIBILITY

Technical Approach: At all partner sites, the network will provide seamless enhanced videoconferencing solution using all viable media (T1, DSL, cable, and ISDN) and using a deaf access software package. The only one currently marketed is Sorenson's EnVision, and it delivers a clearer, smoother image with as little as half the bandwidth of earlier products (constant buffered 15 frames per second), making the transmission of American Sign Language possible. The software installs easily on personal computers, yet leaves the computer free to run business applications. All four project partners have experimented with EnVision during the past year. Connections to remote users are established over standard TCP/IP networking protocols and work very well directly over the Internet, eliminating costly dedicated conference lines. Internet protocol is currently the standard for voice and video, yet there are a number of viable older systems still able to provide videoconferencing if given the bandwidth. In an effort to reach these stations, the Kentucky Commission on the Deaf/Hard of Hearing will implement a multi-point conferencing unit that will allow the Commission site to act as the project conduit for deaf communication through videoconferencing, regardless of the age of the devices at the Departments of Vocational Rehabilitation and Mental Health and Retardation, or the variety of personal computers, e-mail systems, and other peripherals used by all four project partners. At each partner site, a centralized gatekeeper will act as a monitor to control those individuals allowed to schedule and conduct videoconferencing. Individuals must know the internal user address of the person they wish to connect with in order to access the system, a point to contact.

Applicant Qualifications: EKU has invested its resources and time in developing the information technology infrastructure it was sure would provide the "cutting edge" for its students and faculty, as well as the larger regional community it also serves. With over 2,000 office and laboratory networked computers; 18 computer labs (4 at off-campus sites); the only 2 Sign Language Labs in the state; an expanding assistive technologies lab; mobile, computerized literacy units; degree programs in Computer Science, Computer Applications, and Computer Programming; and a large and growing information technology staff to oversee and maintain these resources, EKU has acquired a critical mass of resources, faculty, facilities, and equipment. This foundation affords EKU constituents all the benefits, rights, and privileges of today's Digital World.

EKU has provided distance learning opportunities to a population within its service region and beyond via the Kentucky TeleLinking Network (KTLN) for more than a decade. Sites include the 4 extended campus centers, several high schools and public libraries, and a few governmental buildings. With this decade of use, EKU has perfected a regional distance education process and planted the seeds for collaborative ventures.

Moreover, EKU annually registers more deaf/hard of hearing students than any other postsecondary institution, public or private, in Kentucky. Most of these students are also clients of Vocational Rehabilitation who would find access to this delivery system a welcome occurrence because it would provide immediate contact with their rehabilitation counselors. Recently, EKU was awarded the competitive Postsecondary Education Consortium grant to become the statewide outreach and technical assistance center for postsecondary students who are deaf/hard of hearing. This award virtually ensures a large growth in the number of deaf/hard of hearing students who will enroll at EKU.

Project partners also possess highly competent technical support staff, varying degrees of technology infrastructure, and a broad range of ability to draw down financial resources. Key to this project is the Kentucky Commission on the Deaf and Hard of Hearing (KCDHH) Deaf Access Station (DAS) network. In developing it, KCDHH has deplored a technology infrastructure that includes T-1 lines, 15 PC workstations, and Information Technology staff. The staff installed the necessary deaf-friendly software on the stations and are providing any necessary troubleshooting. These staff will install and maintain any additional access stations implemented during the partnering efforts of K-DAC. The network diagram is provided in **Appendix B** as a technological representation of the four-way partnership. The other two partners, Vocational Rehabilitation and Mental Health and Mental Retardation, possess the personal computers and some other hardware to initiate this project. Vocational Rehabilitation is providing a large number of the required software packages as a match to the project.

Staff resources for K-DAC are numerous. Tricia Davis, Co-Project Director, has a number of years of experience in bringing technology resources to the EKU campus. Most of her professional experience, though, lies in program administration, implementation, documentation, and evaluation. Serving as Project Team Leaders will be Patty Conway (Vocational Rehabilitation), Laurence Hayes (EKU), Marcie Jeffers (Mental Health), and Bobbie Beth Scoggins (KCDHH). All four Team Leaders have a

wealth of experience in working with the deaf/hard of hearing population, including education of the deaf and direct services delivery to the deaf. Professional biographies of these five are included as **Appendix D**. The project will require the hiring of a Co-Project Director and an Outreach Coordinator; job descriptions for these positions are included as **Appendix E**.

Budget, Implementation Schedule, and Timeline: The project budget is $1,485,877.00. The request to NTIA/TOP for the first year of the funding cycle (2001-02) is $386,689. Specific justification for budgeted items is included in the budget narrative.

The project timeline, **Appendix C**, details individual tasks and their duration. Adequate time has been allotted for all steps in the process, and the partners believe the project will be completed within the three-year period. Provision has been made in the schedule for training and developing documentation material, as well as the integration of a continuous evaluation methodology.

Privacy: All partners have in place privacy protections to ensure network and database confidentiality within their own internal systems. All four also have information technology staff and equipment mechanisms that monitor activity 24 hours a day. The project's station software has a built-in privacy and access mechanism; and the need to know the contact person's point address ensures confidentiality. Furthermore, as University and state employees, all project staff are bound by rules and processes that respect and protect client and consumer information.

Sustainability: A strength of this project is that it creates service provision using many **existing** resources by **expanding** them with the use of **emerging** technologies. The goal for this project is to develop and share a replicable organizational model, a telecommunications infrastructure, and training and assessment tools. To this end, the partners will sustain the project beyond the initial three years of TOP funding. The list of sustaining resources is provided as **Appendix F**.

5. COMMUNITY INVOLVEMENT

Partnerships: The goals of K-DAC require the skills and resources of talented partners. This project is not the first time that these four entities (EKU, KCDHH, Vocational Rehabilitation, and Mental Health and Mental Retardation) have partnered for project work. For example, Laurence Hayes of EKU served on the KCDHH Board that oversaw the 1995 Task Force Report mentioned in the opening of this application. Also, EKU has enjoyed a successful and meaningful relationship with Vocational Rehabilitation, which currently funds interpreter positions at EKU. Currently, the four entities have representatives on the Advisory Committee of EKU's new initiative to study domestic violence in the Deaf community. Furthermore, the four have spent the past year conducting **usage feasibility** of the EnVision software package.

Obtaining and Sustaining Community Involvement: The critical need for accessible information technology among deaf/hard of hearing Kentuckians has been established

through town hall meetings, task force research, surveys of service providers and interpreters, and service provider raw data. Furthermore, EKU is in constant dialogue with communities in its large service region as a means of assessing current and projected needs. EKU conducts specific studies of the various communities, often at the behest of the communities themselves and often consults with community groups in areas they feel need to be strengthened. For example, EKU's Center on Deafness is in the midst of organizing a focus group to investigate and develop a program for the continuing education of service providers of the deaf and hard of hearing citizens of Kentucky.

Support for End Users: Project partners are aware that some deaf/hard of hearing individuals are unfamiliar with the use of computers, but focus group results indicate that this population is excited about this project. The partners recognize that **buy-in of the project by the deaf/hard of hearing community is key to the success of the project.** Thus, the partners created the position of Outreach Coordinator. It is anticipated that deaf consumers already somewhat familiar with computers and the Internet will immediately choose to use the access stations while more inexperienced users will choose to wait and have the news of success filter to them. One advantage of this project is that the station sites are locations already frequented by deaf/hard of hearing students, clients, and consumers. Given the close-knit nature of the deaf community, it is anticipated that this acceptance phase will occur long before the project cycle ends. Finally, the Project Co-Directors, Team Leaders, and Outreach Coordinator will coordinate an **Advisory Group of deaf end users** who will offer invaluable insight and feedback at all stages of the project. This Group will ensure that the "voice" of the end users is heard and incorporated into future expansions of the DAS project.

6. EVALUATION

Questions: The primary questions in the project evaluation relate to the degree to which the technology is implemented and human service delivery is improved as a function of the project (as stated in the Outcomes on page 3). Participants in the evaluation will not be identifiable. Please reference **Appendix G** for the Plan of Evaluation.

On behalf of its partners, Eastern Kentucky University Center on Deafness is pleased to submit this application for affiliation with NTIA/TOP. If selected, we look forward to a long and successful relationship with TOP staff and other grantees. Thank you for your consideration of this proposal.